FCC Information

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates radio frequency energy, and if not installed and used in accordance with the instructions, may cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on. The user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connecting the equipment to an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

This device complies with Part 15 of FCC Rules. Operation is subject to the following two conditions:
(1) This device may not cause harmful interference and
(2) This device must accept any interference received, including interference that may cause undesired operation.

Notice to user: Changes or modifications to this product not approved by the party responsible for FCC compliance could void your authority to operate this equipment.

In order for an installation of this product to maintain compliance with the limits for a Class B device, shielded cables must be used for the connection of any devices external to this product.

To the judgment of the products with regard to electromagnetic compatibility according following regulations:
EN 50081-1 (EN55022 class B)
EN 50082-1 (IEC 801 Part 2, 4 / ENV 50140 / ENV 50141)

Macrovision Information

This product incorporates copyright protection technology that is protected by U.S. patents and other intellectual property rights. Use of this copyright protection technology must be authorized by Macrovision, and is intended for home and other limited viewing uses only unless otherwise authorized by Macrovision. Reverse engineering or disassembly is prohibited.

PNY Graphics Card Warranty

Please refer to our website at <u>www.pny.com</u> or write to PNY Customer Service, 299 Webro Rd. Parsippany, NJ 07054 for complete Warranty information.

The information in this document is subject to change without notice.

Contents

Chapter 1 - Introduction

Congratulations on the purchase of your graphics accelerator card by PNY Technologies® Inc. You are now the owner of a state-of-the-art video adapter that offers features and functionality beyond integrated graphics. We recommend that you read through the Installation Guide before installing your video card to ensure that the installation process goes smoothly.

Package Contents:
Please check your VGA package, which contains the items below. If you find any damaged or missing items, please contact your dealer.
- PNY GeForce® graphics card
- This Quick Start Guide
- CD-ROM: NVIDIA® GeForce® drivers for Microsoft® Windows® 2000/XP/Vista , Microsoft® DirectX® 9, NVIDIA® demos, desktop wallpapers
- S-Video cable[2]
- HDTV-out breakout pod[2]
- Y power cable(s)[2]
- DVI to VGA adapter(s)[2]

[1] If you require Windows® 98/Me/NT drivers, please go to http://www.pny.com and click on the Support link.
[2] If required by your PNY GeForce® graphics card

Before You Begin:

- **Be sure to write down your card's serial numbers** to claim your extended warranty
  - Products must be registered within 90 days of purchase for eligibility.
  - From the included driver CD, click on "Register Your PNY Graphics Card" on the main screen as shown in **Figure 9**.
  - You need an internet connection to perform the online registration process.

- Before installing your GeForce® graphics card, please verify that you have downloaded all of the Windows® updates from http://www.microsoft.com.

Figure 1: Register Your Graphics Card

- **Installation in Windows® Vista/XP/2000:** After inserting your GeForce® graphics card, the first time you boot to Windows, please close or cancel the Add New Hardware Wizard and any related messages, disable your anti-virus application, insert the GeForce® Installation CD, and click the Install Driver option on the GeForce® Installation CD menu.
- **Installation in Windows® 98 or Windows® ME:** After inserting your GeForce® graphics card, the first time you boot to Windows, please install the Standard VGA Driver or the Standard PCI VGA Driver, then install the latest version of DirectX®, then disable your anti-virus application, insert the GeForce® Installation CD and click the Install Driver option on the GeForce® Installation CD menu.

- **Installation in Windows® NT4.0:** After inserting your GeForce® graphics card, the first time you boot to Windows, you may get an error message that a device driver did not load properly. Please close or cancel this notification and any related messages, disable your anti-virus application, insert the GeForce® Installation CD, and click the Install Driver option on the GeForce® Installation CD menu.
- **If you are running Windows® NT4.0**, please note that some drivers are not compatible with earlier releases of Windows® NT. Consult your dealer or local support to ensure you have the most recent releases for Windows® NT and the drivers.
- To use an AGP graphics card with Windows® NT4.0, you may need to re-install NT with Service Pack 6 (SP6) before installing the AGP card.
- **Windows® 98/ME/NT do not support PCI-Express® (PCIe) technology.**
- If you purchased a PNY GeForce® PCI graphics card and **if you have on-board (built-in) graphics**, enter the system's BIOS setup and look for a setting called "Primary Display Adapter" or something similar. Set this to "PCI". If you cannot locate this setting, please contact your system manufacturer or check with your owner's manual.

Chapter 2 - Hardware Installation

Static electricity can severely damage electronic parts. Take these precautions prior to beginning the graphics card installation:

- Before touching any electronic parts, drain the static electricity from your body. You can do this by touching the internal metal frame of your computer while it's unplugged.
- Don't remove a card from the anti-static container it shipped in until you're ready to install it. Whenever you remove a card from your computer, always make sure to place it back in its container.
- Don't let your clothes touch any electronic parts.
- When handling a card, hold it by its edges, and avoid touching its circuitry.

Preparing Your Computer for Installation
Prior to working on your computer, make sure the power of the computer and any attached equipment such as a monitor or printer is turned off. Unplug your computer and remove the cover. Remove your current graphics card. For systems with 'On-Board 3D Graphics', there is no graphics card to remove. Some systems may require you to disable your 'On-Board 3D Graphics'. Consult your PC users' manual or vendor manual on how to properly do this.

Selecting the Proper Expansion Slot
Most computers have a combination of AGP, PCI and ISA expansion slots. All these slots may look similar at first; however you will notice their differences once you examine them more closely. The ISA connectors are black and are the largest of the three types. The AGP slot on your computer motherboard is usually the closest connector to the CPU and is made from a plastic of a contrasting brown color. The PCI connectors are usually located between the AGP and ISA connectors, are made from a white plastic and are the same connector type that most Sound or Modem Cards are connected. If you are still unsure which connectors are AGP and PCI, consult your system manual to help you identify them. **Plugging your graphics card into an incorrect slot could damage the card, your computer, or both.** Do not try to force a card into a slot that does not accommodate it, as it is probably the wrong slot. The diagram below should help you in identifying the proper slot.

PCI Slots (5)

ISA Slot

AGP Slot

Figure 2: Motherboard Example

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PCI-Express® (PCIe) Expansion Slot
Most PCI-Express® motherboards have a combination of PCIe and regular PCI expansion slots. The PCI connectors are usually located at the bottom of the motherboard and are usually made from a white plastic. This is the same connector type where most Sound or Modem Cards are connected. The PCIe connectors are the next set of connectors adjacent to the PCI. Typically, motherboards have one or more of PCIe 1x and PCIe 16x slots. Your GeForce PCI-Express® graphics card will fit in the PCIe 16x slot. If you are still unsure which connectors are PCIe and PCI, consult your system manual to help you identify them. **Plugging your graphics card into an incorrect slot could damage the card, your computer, or both.** Do not try to force a card into a slot that does not accommodate it, as it is probably the wrong slot. The diagram below should help you in identifying the proper slot.
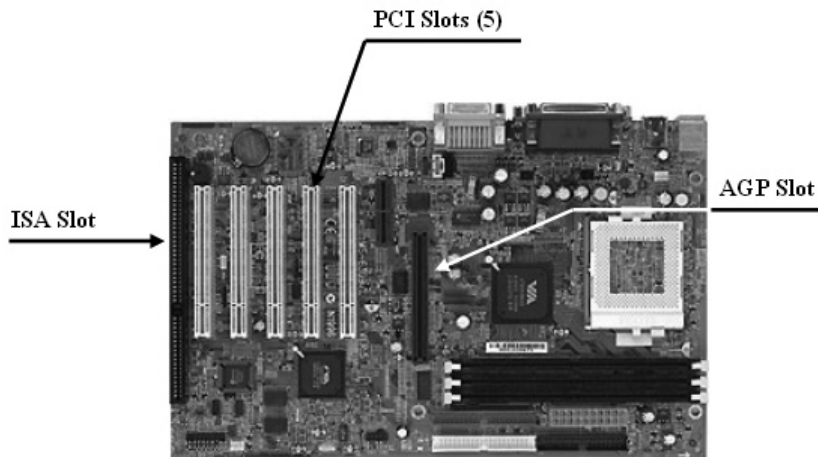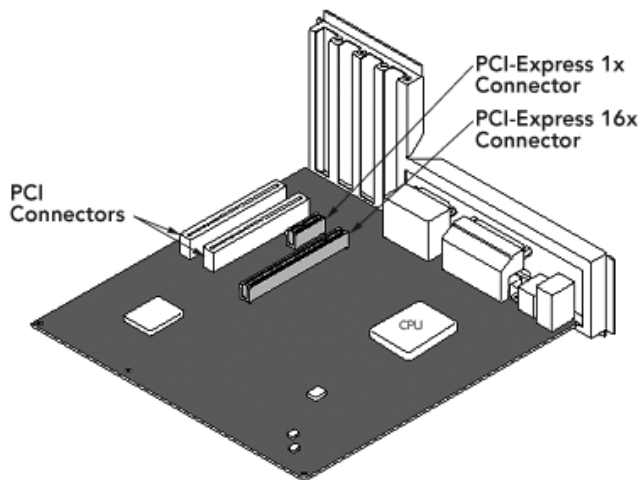

Figure 3: PCIe Motherboard Example

Recognizing Your Graphics Card's Connector Type
The following picture shows the three current available connectors for your graphics cards. You can see the AGP, PCI and PCI-Express® 16x connectors. Make note of the position of their notches as well as the connector position relative to the bracket.

AGP 3.0 Connector

PCI Connector

PCI-Express Connector

Figure 4: AGP vs. PCI vs. PCI-Express®

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Inserting Your Graphics Card
Remove the cover for the slot you intend to use and save the screw for the mounting bracket of your new PNY graphics card. Then, position the PNY graphics card over the expansion slot that coincides with the type (AGP, PCI, or PCI-Express® 16x) of card purchased. Push the card firmly and evenly until it's fully seated into the slot. Replace the screw to secure the bracket of the graphics card to the computer chassis. Replace the cover of your computer.
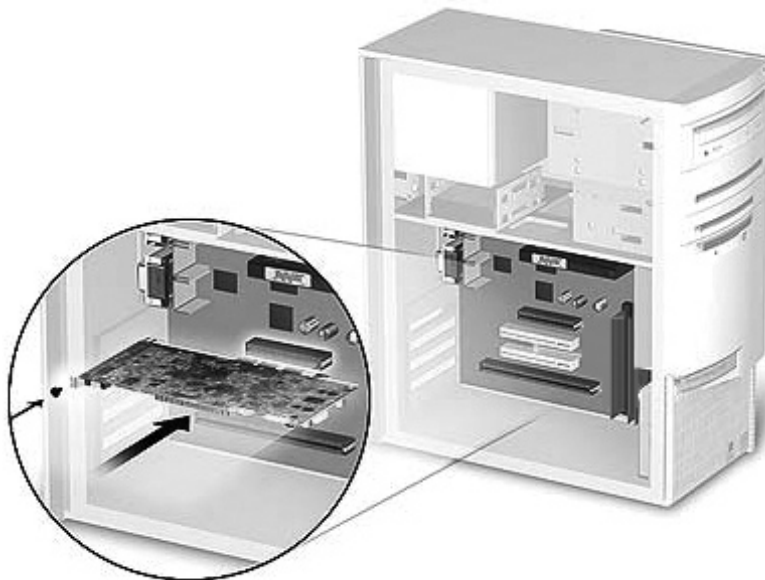
Figure 5: Inserting your graphics card.

Connecting Your Display
Plug your Monitor, Flat Panel Display, or your S-Video (TV) cable into the appropriate connector on your graphics card. Please note that if your card is equipped with HDTV-out, there is either a 9 or 10 pin connector instead of the 4 or 7 pin connector for S-Video. All cables MUST be connected before your computer is powered on.
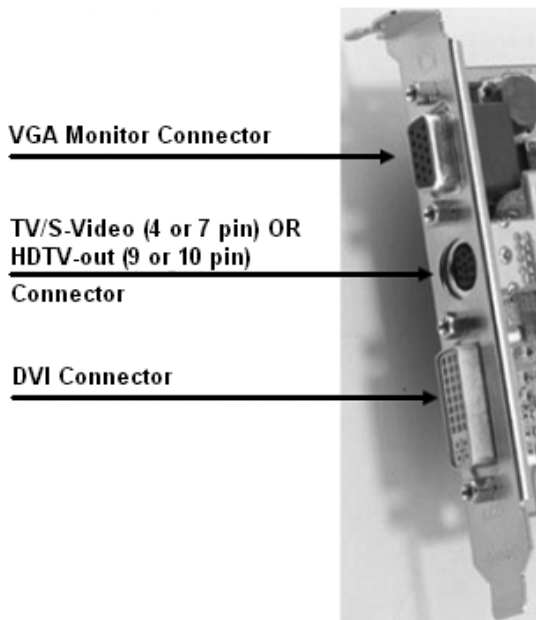
Figure 6: Possible graphics card connectors

Supplemental Power Requirements (Single Supplemental Power Connector)

If your PNY GeForce® graphics card is equipped with **a single supplemental power connector**, your system's power supply must be connected to it for the graphics card to work optimally. Before booting your PC, locate an unused 4-pin (**6-pin for PCIe cards**) power plug inside your computer system and plug it into the card connector as shown below. The power connector is keyed so that it can only be inserted one way. Please verify the orientation of the plug before insertion. **DO NOT FORCE THE POWER PLUG INTO THE CONNECTOR.**

Figure 7: Supplemental power requirements for cards with one additional power connector

Supplemental Power Requirements (Dual Supplemental Power Connectors)

If your PNY GeForce® graphics card is equipped with **dual supplemental power connectors**, your system's power supply must be connected to it for the graphics card to work optimally. Before booting your PC, locate two unused 4-pin (**6-pin for PCIe cards**) power plugs inside your computer system and plug them into the card connectors as shown below. The power connectors are keyed so that they can only be inserted one way. Please verify the orientation of the plugs before insertion. **DO NOT FORCE THE POWER PLUGS INTO THE CONNECTORS.**
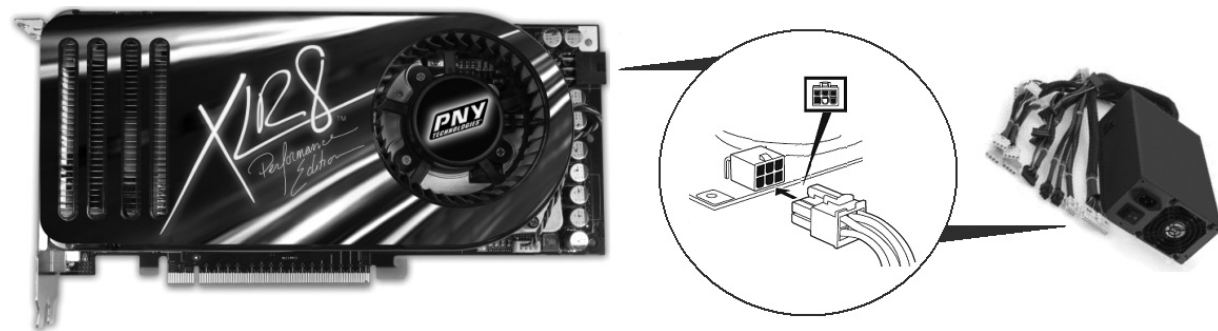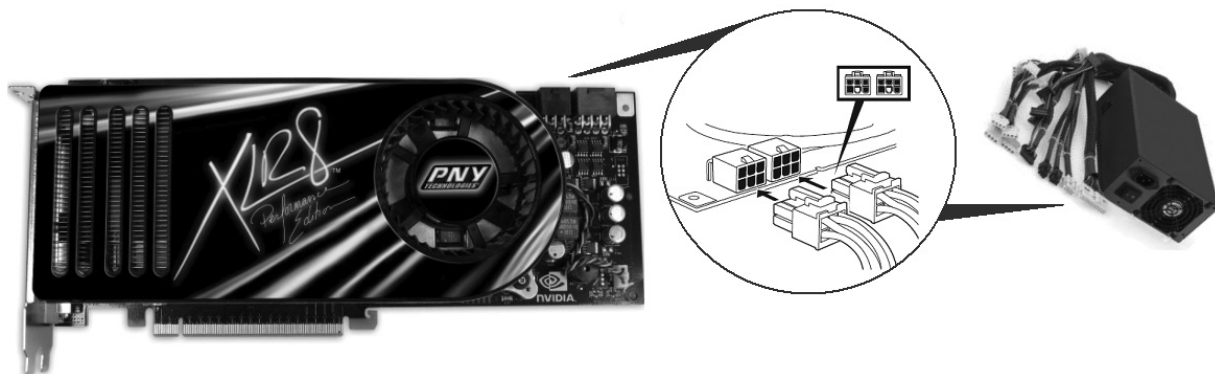

Figure 8: Supplemental power requirements for cards with two supplemental power connectors

Minimum System Requirements
For minimum system requirements for your PNY GeForce® graphics card please refer to http://www.pny.com/support/

Chapter 3 - Software Installation

Installing the Standard Video Graphics Adapter (VGA) Driver
- Power up your computer and launch Windows® 98/2000/Me/XP/NT/Vista
- The **Building Driver Database** dialog box will appear as the Windows® operating system builds the driver database
- When the **Add New Hardware Wizard** appears, click **Next**
- Choose **Search For The Best Driver For Your Device**, and click **Next**
- Make sure that all of the four choices are left blank. If not, un-check the applicable box. Then click **Next**
- Windows® is now ready to install the **Standard Graphics Adapter** driver. Click **Next** to continue
- Click **Finish**. Windows® will install the **Standard Graphics Adapter** driver
- You will now be prompted to re-start your computer. Click **Yes**

You are now ready to install the required drivers for your new graphics card

Installing DirectX® 9
GeForce® FX graphics cards have been designed with full support for Microsoft® DirectX® 9. In order to take advantage of these new capabilities and enhancements, you need to install DirectX® 9 before installing the drivers for your graphics card.

Note: Some games may not be compatible with DirectX® 9. Please verify your games' manuals for compatibility or go to the games manufacturers' website for any upgrades or patches. If your game is not compatible, you may need to install DirectX® 8.1. Please visit http://www.microsoft.com for DirectX® 8.1 or other versions of DirectX®.

Steps to follow:
1. Turn on your computer and start Windows®.
2. Insert the Driver CD into your CD-ROM drive.
3. The 'Auto-load' install shield will appear as shown in
   Figure 9, click on the **Install DirectX® 9** button.
      a. If your CD-ROM drive is not auto-detect
         enabled, click the Start button on the task bar
         and then select the Run button.
      b. Type "**D:\launch.exe**" in the dialog box and hit
         enter (**where D:\ is the location of your
         CD-ROM drive**).
      c. The install shield will now appear. Proceed with
         step 3 above.
4. **DirectX® 9 will now be installed in your system**,
   follow the instructions on the screen to complete
   installation.
5. Your system will restart to complete the installation.
6. You may now proceed to **Installing GeForce® Drivers**.

Figure 9: PNY Software Installation CD

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Installing GeForce® Drivers

After installing DirectX® 9, the drivers for your graphics card must be installed. To install the drivers follow these steps:

1. When your system restarts, the 'Auto-load' install shield will appear, click on the **Install Drivers** button.
    a. If your CD-ROM drive is not auto-detect enabled, click the Start button on the task bar and then select the Run button.
    b. Type "**D:\launch.exe**" in the dialog box and hit enter (**where D:\ is the location of your CD-ROM drive**).
    c. The install shield will now appear. Proceed with step 1 above.
2. The VGA Installation dialog box will appear on the screen, follow the instructions on the screen to complete installation.
    a. If you have upgraded your graphics card from another NVIDIA® based card, your system will have older NVIDIA® drivers installed and you will get the splash screen as shown in **Figure 10**.
    b. **It is recommended that you uninstall the NVIDIA® drivers in your system in order for the new drivers to install properly**.

Figure 10: Uninstall Existing Drivers Splash Screen

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    c. To do this, click the **Uninstall Existing
       Drivers** button.

    d. The existing drivers will be uninstalled and
       your system will be rebooted.

    e. Once your system reboots, proceed with
       step 1 above.

3. At the time of shipment, the compatibility testing of
the graphics card drivers may not have completed. If
this is the case, you will get a warning as in **Figure 11**.
Please click "Continue Anyway".

    a. To check for the latest drivers, go to our website
       at: http://www.pny.com/support

4. Once the drivers are installed, the InstallShield Wizard
Complete window will appear as shown in **Figure 12**.

5. Verify that Yes is selected and then click on Finish to
restart your system for the changes to take effect.

Figure 11: WHQL warning

Figure 12: Restart your system

Installing NVIDIA® WDM Drivers
If your PNY GeForce® graphics card is equipped with Video-In-Video-Out (VIVO) functionality, you must install the NVIDIA® WDM drivers for proper operation.

To install follow these steps:
1. Make sure that the GeForce® Drivers have been already installed. If not, proceed to **Installing GeForce® Drivers**.
2. Turn on your computer and start Windows® 2000/XP/Vista.
3. Insert the Driver CD into your CD-ROM drive
4. The 'Auto-load' install shield will appear as shown in **Figure 9**, click on the **Bonus Software** button.
   a. If your CD-ROM drive is not auto-detect enabled, click the Start button on the task bar and then select the Run button.
   b. Type "**D:\launch.exe**" in the dialog box and hit enter (**where D:\ is the location of your CD-ROM drive**).
   c. The install shield will now appear. Proceed with step 4 above.
5. **Click on the NVIDIA® WDM Drivers button** and follow the instructions on the screen to complete installation.
6. At the time of shipment, the compatibility testing of the WDM drivers may not have completed. If this is the case, you will get a warning similar to **Figure 11**. Please click "Continue Anyway".
   a. To check for the latest drivers, go to our website at: http://www.pny.com/support
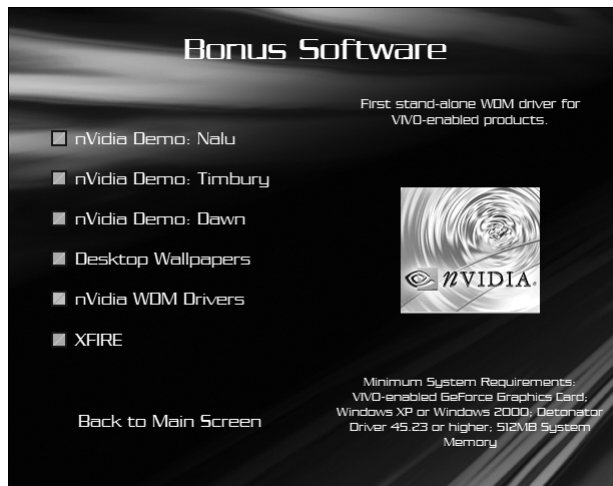7. You will need to restart your system to complete the installation.

Figure 13: WDM Installation

Chapter 4 - Display Properties

Color Quality and Screen Resolution

After completion of the display drivers, you are now ready to configure the display properties of your PNY graphics card. To open the "Display Properties" window of your computer, you may simply right-click the Windows® desktop wallpaper area and click on the "Properties" item to open it as shown on **Figure 14**.

Figure 14: Opening the Display Properties Window

The Display Properties window will appear on your screen. Click on the settings tab to see your current screen resolution and color quality as shown on **Figure 15.**

Screen resolution: Displays the current screen resolution settings for the monitor that appears in **Display**. Drag the slider to specify the screen resolution you want. As you increase the number of pixels, you display more information on your screen, but the information decreases in size. **Verify your monitor's capabilities before changing**.

Color Quality: Displays the current color quality for the monitor. To use a different color setting, click the arrow, and then click the setting you want.

Advanced: Click on this button to open up the video card's advanced options window where you can "tweak" the performance of your video card. See **Chapter 5 - NVIDIA® GPU Properties** for more information.
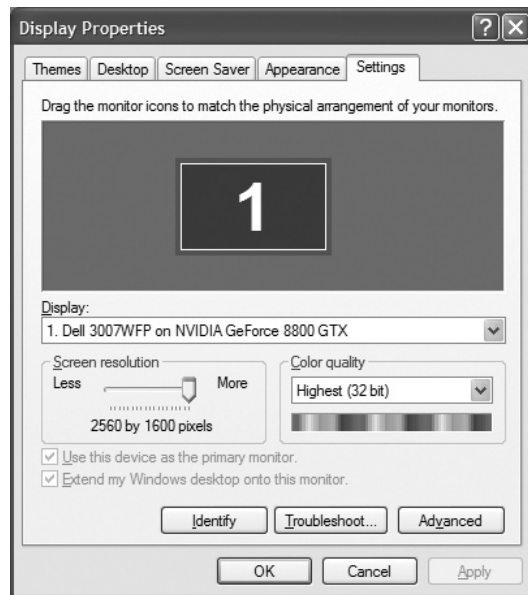
Figure 15: Display Properties Window

Chapter 5 - NVIDIA® GPU Properties

A new exciting Graphical User Interface (GUI) has been incorporated into the driver to enable you to more easily change your display settings. In addition to setting up basic display configurations such as display resolution, refresh rate, and multiple display use, you can also Tune your 3D settings with real-time preview to maximize performance or image quality, Customize how 3D applications work in your system, Adjust your screen colors and contrast, Set custom timings, Control video image settings and Change your HDTV format.
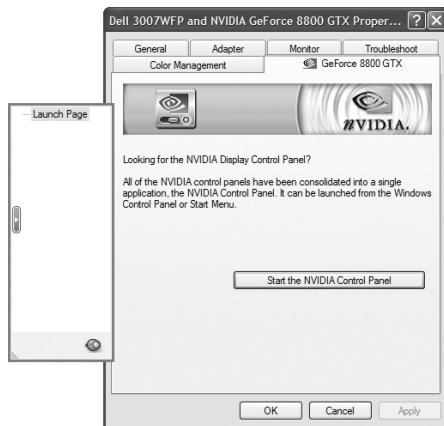

Figure 16: New NVIDIA® Control Panel

To launch the new Control Panel, click on the "Start the NVIDIA® Control Panel". You can also Right-click the Windows desktop, then click **NVIDIA® Control Panel** from the context menu, or From the Windows **Start** menu, select **Control Panel**, then in the **Control Panel** window, double-click on the NVIDIA® Control Panel icon.

Menu Bar ────────▶

Tool Bar ◀────────

Explorer Bar ────────▶

Primary
Tasks Area ◀────────

Figure 17: The NVIDIA® Control Panel Interface

The NVIDIA® Control Panel provides an easy-to-use interface for managing your system. The NVIDIA® Control Panel user interface consists of the main areas, as shown in **Figure 17**. When you start the program, the NVIDIA® Control Panel home page is displayed. The home page is the starting point and provides access to application task pages which you can use for managing your system.

Graphics Card Information

From the Control Panel's Menu Bar (**see Figure 17**), Click on **Help > System Information**. The System Information window opens as shown on **Figure 18**.

This window displays all your installed graphics card adapters' information, system information and driver version information.
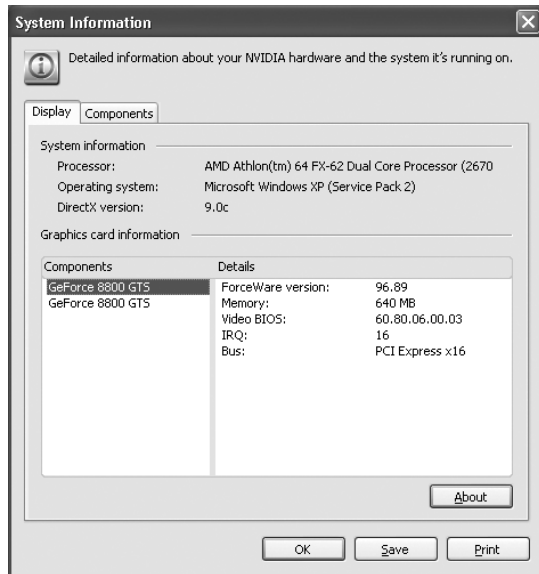

Figure 18: Graphics Card Information

Chapter 6 - NVIDIA® nView® Installation

What is NVIDIA® nView®?

NVIDIA's® nView® is a desktop utility designed to give you an easier way of managing multiple displays and enhancing your desktop. Once you install the NVIDIA® drivers and reboot, the following NVIDIA® nView® wizard will come up. You can either choose to configure it or cancel the nView® setup. Follow the instructions on the screen to complete installation.

For a full description of nView's® features and capabilities, go to http://www.pny.com/support/ and download the nView® Users Guide

Over the next few pages we will display the different screenshots of enabling nView® in your system.

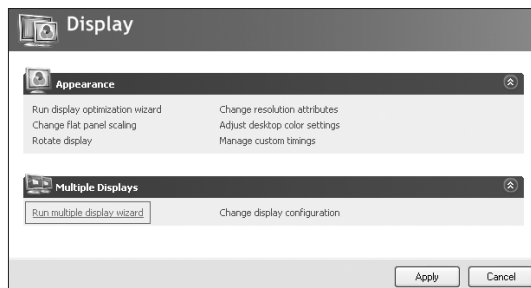**Figure 19: Configure Multiple Displays**

Figure 20: nView® Multi-Display Setup Wizard

Click the **Run multiple display wizard** link to begin the process.

Read the welcome screen and click on **Next** to continue the configuration or **Cancel** to exit.

Chapter 7 - Technical Support

PNY Technologies® provides "Live Technical Support" 5 days a week from 9am to 8pm Monday thru Friday Eastern Standard Time. Our Automated Technical Support System is designed to provide help with common day-to-day graphics card issues. It is available 24 hours a day, 7 days a week at 1-888-316-1193.

For additional help you may visit the PNY Technical Support website **http://www.pny.com/support/**

Notes:

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